

## TRADE, ENVIRONMENT AND THE FISHERS IN THAILAND

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### ABSTRACT

Thailand had been one of the most important fish exporting country, in spite of the degradation in her marine resources. Small scale fisheries accounted for more than 80 percent of the total marine fisheries households in this country. Fisheries had been considered the important source of food, income, employment and way of life among coastal dwellers. Lack of scientific information on fisheries resources constrained effective fishery management in Thailand. Strict sanitary and environmental requirements constrained access to the markets. Still there were provisions in WTO Agreements. Enhancing capacity in fisheries management, increasing awareness on the environmental impact as well as appropriate technology for sustainable development in harvesting, processing and trading sector, and better understanding on the existing WTO trade provisions could have a significant contribution on human development in Thai fisheries. There was a need for human development for fisheries trade liberalization, building the capacity in fisheries management for sustainable fisheries as well as building awareness and understanding on existing WTO provisions in relevance to fishery trade.

**Keywords:** fishery trade; small scale fisheries; fishers, WTO; Thailand

### FISHERIES, TRADE, AND FISHERS IN THAILAND

Thailand had been one of the important seafood exporters for years, sharing about 10% of the total world seafood export while the capture share in world capture was about 3 %. Fish export value contributed around 4% of Thai gross domestic product, being 4,292 million US\$ in 2001. Main importers included the United States (35%), Japan (28%), Canada (4%), Singapore (4%), Australia (4%), Taiwan (2%), United Kingdom (2%), South Korea (1%), Germany (1%) and China (1%) while the rest shared 18% of Thai seafood export value. About half of export values were shrimp; mainly frozen (29%) and not in airtight container (22%), followed by canned tuna (13%), frozen fish (8%), frozen squid (6%), canned fish (except tuna, 4%), and others (18%).

About half of marine catches in Thailand were from otter board trawls. 21% was from purse seine, 12% pair trawls, and 5% anchovy purse seine; followed by 2% push net, crab gill net, Indo-Pacific mackerel gill net, and shrimp gill net at 1% each. Others were 7%. Main catches from otter board trawls were demersal species, mainly trash fish sold for animal feed. Purse seine was the second important gear, catching pelagic food fish while pair trawl catches were demersal. Anchovy purse seine had conflicts in fishery resources with coastal fisheries. Crab gill net and shrimp gill net were important gears for coastal small scale fisheries. Other coastal fishing gears included mullet gill net, squid trammel net, acetes scoop net, beam trawl, and cast net. Share of small scale fisheries was about 5 % of total marine catches<sup>1</sup>. 61% of total fish production in Thailand was marine fish. Shrimp shared about 10% of the total fish production (of which 8% were from culture). Mollusks shared about 9% while it was 5% for squids, 2%, and 1% for crab and other 1% for others. The rest 13% was those freshwater. Nevertheless in term of value shrimp was the highest, sharing about half of the total production value.

20% of marine catches were consumed fresh mainly for domestic consumption. 25% were frozen mainly for export. 20% were canned. 25% were sold for fish meal. The rest 10% were processed in various forms. There were more than two thousand processing plants in Thailand of which about half were small scale plants for primary processing (mainly salted/dried). Cold storage plants were 134, at almost 6 tons

average annual capacity per plant. Canning plants were 42 with 14 tons average annual capacity per plant. Fish meal plants were 98 with 8 tons average annual capacity per plant.

In Thailand there were 3,797 marine fishery communities along the coastlines in 24 provinces. Number of marine fishery households was 93,512 and there were 29,122 marine fishery employee households. In term of employment there were 253,450 fishery employees, mainly in commercial sector. Small scale fishery households were 88%, mostly located in the South. Their main fishing vessel was outboard engine (73% of fishing vessels in Thailand). Fishing vessels for small scale fisheries included outboard engine, less than 5 GT inboard (7%), and non-motorized (4%). 6% were without fishing vessel. The rest 10% were commercial scale fishing vessels.<sup>2</sup>

Development in commercial scale fishery, especially trawls and push nets, was believed to have negative impact on coastal small scale fisheries, deteriorating coastal fishery resources thus less catches for small scale coastal fisheries. Development of anchovy light luring purse seine led to further problems on degraded fishery resources. Catch per unit effort reduced from around 300 kg/hr in 1961 to less than 30 kg/hr recently. Shrimp was the main source of foreign exchange earning. High investment and high risk in shrimp farming constrained coastal small scale fishermen to share the benefit from shrimp industry. Foreign exchange earning from fishery sectors had not much been realized by small scale fishermen, on the contrary high demand for fishery product in the world market had led to careless resource utilization, mainly by commercial fisheries, thus over-fishing leaving small scale fisheries with degraded fishery resources.

## **TRADE BARRIERS**

On the average, tariff rate on primary fishery products could be considered low in major importing market. For primary shrimp products (HS0306), tariff rate in main export market i.e. the United States was zero. However shrimp producers and processors in the US were forming the petition on anti-dumping for shrimp import from 16 countries of which Thailand was the top exporter. Tariff might be higher if Thailand failed to prove that the export to the US was not under cost. Tariff on frozen shrimp was also low in the other two main markets, Japan and EU. However there was tariff quota in EU. Off Quota tariff was 12 %. For some high price frozen shrimp, tariff could be as high as 18%. There was more difficulties in selling to EU market. For processed shrimp, tariff rates were higher. For tuna, main export item was canned tuna. Tariff rate in the US was 6 – 35% depending on type of the product. It was 9.6% in Japan and 24 – 25% in EU. Tariff escalation was still the problem for processed fishery product. Importing countries opened the market for primary product but maintained high tariff on processed products, limiting Thai foreign exchange earning from value-added products.

Demand for raw inputs for fishery industries as well as human consumption could be one of the reasons for low tariff on primary products. High cost of fishing and less abundant fishery resources in developed countries increased their import demand, thus low tariff rate. Nevertheless, lack of effective fishery management in Thailand together with high price in international market could lead to over-fishing, thus resource degradation. In case of processed products, tariff rates remained high in protection on importing country domestic fishery industries.

Trade liberalization in fishery products could lead to a better export price due to lower tariff rate, thus increase demand for fishery products which possibly lead to over-exploitation. Thai fisheries export was an example of rapid development led by high foreign exchange earning thus over-fishing and resource degradation, a linkage between trade and environment which had to be explored. It should be noticed that most of the tariff rates on primary fish export had been reduced; nevertheless there were still problems of tariff escalation. Such scheme might be an

indicator of demand from developed countries for import of developing country primary products while the processing sectors were protected for domestic producers. Due to less fishery resource abundance, developed countries had to increase their fishery import from developing countries, mainly on primary fish products. Trade liberalization in fisheries should not be too specific on primary products as it could induce more harvesting and thus over-exploitation on fishery resources. The liberalization should be both on primary and processed products, in parallel, such that there would not be bias on harvesting sector. Fishery resource abundance in developing countries, in lack of effective fishery management, might have been over-exploited their fishery resources for international market. For sustainable fishery, management capacity in developing countries should be strengthened. Trade liberalization on fishery products should be incorporated with effective fishery management targeting, for sustainable optimal global utilization of fishery resources.

Most of non-tariff measures on fishery products from Thailand were sanitary and phytosanitary (PPS) measures, followed by technical barriers like labeling. Not many developed countries used environmental measures against Thai fishery exports. Most of SPS measures concerned requirement on quality inspection. Health certificate, GMP approval, and hazard analysis critical control point (HACCP) were required. Thai government adopted practices as required having Department of Fisheries and Department of Medical Science as competent authorities. Such practices increased cost while maintaining high product quality. Strengthening quality control was one of the National Fishery Policy, since the emphasis was on foreign exchange earning from fishery exports.

The United States applied environmental measures on shrimp from Thailand, banning those catches not using turtle exclusive device (TED). Since most of shrimp export from Thailand was from culture not capture, the problem was alleviated by government certification on source of origin for shrimp export to the United States. Dolphin safe was also applied. Japan used strict SPS measures on Thai shrimp. Processing plants must be certified by competent authority in order to be free from a total inspection upon arriving Japan. Processing plants must also be certified by Japanese Ministry of Public Health. The import must be free from antibiotic residue, oxylinic and oxytetracycline. Japan referred to Food Sanitation Law for quality control. EU used SPS measures, technical barrier to trade (TBT) concerning GMO and eco-labeling. There was restriction on GMO in raw inputs. In spite of almost all zero tariff on fishery products, Australia applied SPS measures, import licensing, TBT, and minimum price control. Some developing countries also applied SPS measures on shrimp from Thailand.

In case of fish products, Japan used SPS referring to Food Sanitation Law. Import quota was applied for selected import. Canada imported only from plants certified by USFDA. China required permit from Ministry of Foreign Trade for pipefish import.

For canned tuna, SPS was used by various importing countries including the US, Japan, Canada, Czech Republic, Saudi Arabia, and Egypt. For other canned fish, EU would import only canned sardine labeled as "sardinella pilchardu". Hungary applied quota on canned fish.

For fish meal, EU applied SPS measures requiring registration of exporting plants and health certificate.

For other processed fish, Australia applied SPS measures and import prohibition for selected products, especially from Asian countries including Thailand.

Japan, South Korea, and Spain applied SPS measures on frozen squids. Japan referred to Food Sanitation Law. South Korea required health certificate from Thailand, yet the import must be inspected by Korean

FDA. Spain banned import with over 1 ppm cadmium contamination (EU standard was 2 ppm). Japan also applied import quota for certain commodity. South Korea also used strict control on labeling.

The US environmental measures were applied on crab as well as shrimp. South Korea applied environmental measures on crab and squid.

For mollusks, Spain applied SPS measures requiring health certificate which must be translated in Spanish.

For other fishery products, SPS measures were used by the US, Japan, EU, Australia, Canada, China, South Korea, Hong Kong, Laos, Brazil and Argentina. The HACCP was required by the US. Japan had a strict inspection for food safety. EU requires health certificate and the approval on processing plants by competent authority. Australia applied the same measures as EU plus the label “to be cooked before eating” on each piece. Canada required health certificate and in addition, seafood health standard must be approved by Quarantine Inspectors from Canada.

Not only higher tariff rate, processed fishery products were more restricted than the primary ones.

## FISHERY TRADE AND ENVIRONMENT

During WTO Uruguay Round it was concluded that concerning trade and environment, fisheries, as well as forestry, should be categorized as natural resource base products (NRBPs). Nevertheless, the negotiation on NRBPs had not been much progress. By that time, advanced fishing countries were interested in exchanging market access for resource access. As a result fishery subsidies were covered by WTO Agreement on Subsidies and Countervailing Measures (SCM) which included all products except agricultural ones. WTO Doha Declaration states in paragraph 28 under WTO Rules and paragraph 31 under Trade and Environment that:<sup>3</sup>

*“28. In the light of experience and of the increasing application of these instruments by Members, we agree to negotiations aimed at clarifying and improving disciplines under the Agreements on Implementation of Article VI of the GATT 1994 and on Subsidies and Countervailing Measures, while preserving the basic concepts, principles and effectiveness of these Agreements and their instruments and objectives, and taking into account the needs of developing and least-developed participants. In the initial phase of the negotiations, participants will indicate the provisions, including disciplines on trade distorting practices, that they seek to clarify and improve in the subsequent phase. In the context of these negotiations, participants shall also aim to clarify and improve WTO disciplines on fisheries subsidies, taking into account the importance of this sector to developing countries. We note that fisheries subsidies are also referred to in paragraph 31.*

.....  
*31. With a view to enhancing the mutual supportiveness of trade and environment, we agree to negotiations, without prejudging their outcome, on:*

*(i) the relationship between existing WTO rules and specific trade obligations set out in multilateral environmental agreements (MEAs). The negotiations shall be limited in scope to the applicability of such existing WTO rules as among parties the MEA in question. The negotiations shall not prejudice the WTO rights of any Member that is not a party to the MEA in question;*

*(ii) procedures for regular information exchange between MEA Secretariats and the relevant WTO committees, and the criteria for the granting of observer status;*  
*(iii) the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services.*

*We note that fisheries subsidies form part of the negotiations provided for in paragraph 28.”*

The Committee on Trade and Environment (CTE) was established in WTO after the Marrakech Agreement in 1994 with the main function on identifying the relationship between trade measures and environmental measures including those in Multi Environmental Agreements (MEAs) in order to promote sustainable development. Important WTO trade agreements concerning environment include the following.

- General Agreement on Tariff and Trade, 1994
  - Article I - the most favored nation rule with the exceptions on regional trade agreement and developing countries.
  - Article III - the national-treatment rule for like products which does not allow preference to “green” products.
  - Article XI - prohibits the use of quota, import or export licensing which can lead to conflict with MEAs when trade limit is applied to non-parties and non-compliance.
  - Article XX - allows environmental exceptions for national laws against trade rules in order to protect human, animal or plant life or health (paragraph b) and to conserve exhaustible natural resources in conjunction with domestic production or consumption (paragraph g)
- Agreement on Technical Barriers to Trade (TBT)
- Agreement on the Application of Sanitary and Phytosanitary (SPS) Measures

While Article XX of GATT 1994 allows implementations on national regulations in accordance with MEAs against non-parties aimed at fishery resource conservation, the evidences on environmental conservation and sustainable fisheries were required. Article I, III and XI did not allow discrimination for “green” products since it might be disguised trade barrier.. Scientific information on fishery resources and fishing as well as processing technology were important. Though there was the linkage between trade and environment, the problems lay in the degree of non-discrimination and the negative environmental impact of the fishery products in the international market.

Agreement on TBT did not allow applying environmental standards as non-tariff barriers. Code of Good Practice had been employed as the reference. The technical measures of traded goods had to be notified, transparent, and in accordance with the international standards. Often found in cases of technical barrier to trade for fishery products were those labeling requirement including eco-labeling and rules of origin.

Agreement on SPS provided rules against the use of sanitary and phytosanitary measures as trade barriers. Problem on health sanitation had been one of the trade barriers especially for fishery products from developing countries. Scientific references such as CODEX, HACCP, and good manufacturing practice (GMP) as well as competent authority designation reduced the problem.

Problems of trade measures against Thai fishery exports were mainly sanitary and phytosanitary (SPS) measures. Definition of the measure was in Annex A – Paragraph 1 of the Agreement on SPS. Discrimination of the measures was not allowed according to Article 2 - Paragraph 3. Nevertheless according to Article 4 - Paragraph 1, measures could be different between exporting and importing countries while bilateral and multilateral agreement consultation was allowed in Paragraph 2 of the same Article. In Article 5 – Paragraph 4, the level of SPS protection should take into account the objective of minimizing negative trade effects. Still, SPS measures applied by developed countries could still be the problem. Example was chloramphenicol and nitrofurane zero-tolerance residue in frozen shrimp export to the European Union. In Annex A – Paragraph 3 there were international standards, guidelines and recommendations. For food safety the Codex Alimentarius Commission was the reference. Though Article 3 – Paragraph 3 allowed importing country to apply higher level SPS protection but there must be scientific justification. Article 5 provided assessment of risk and determination of the appropriate level of SPS protection. Article 12 – Paragraphs 1,2 and 3 provided room for establishment of committee in developing guideline to implement higher level of SPS. These provisions had not yet been fully utilized by exporting countries, including Thailand. The immediate solution was to follow the requirement of the EU at a cost of implementation, technical and administrative. Educating Thai producers and exporters on the SPS measures as applied by the importing countries. Understanding the provision in the Agreement on SPS could lessen the problem.

Nevertheless “*consumption externalities*”<sup>4</sup> from fishery products were product-related environmental impact from fisheries. Trade negotiation on these issues could rely on Agreement on SPS and Agreement on TBT. “*Production externalities*”<sup>5</sup> on the other hand had not been well covered in WTO Agreements. Nevertheless Article XX of GATT 1994 provided exceptions for environmental-related measures, as necessary to protect human, animal or plant life or health and to conserve exhaustible natural resources. Nevertheless to use these exceptions in Article XX, justification was required. For the first exception, there must be necessity in such environmental protection. Clarification on the need was required and the trade measure must be least restrictive. For the second exception, there must be related domestic laws on such conservation as well as the implementation. In addition the laws must be primarily aimed at conservation and had a close relationship between means and ends. There was a room for negotiation under existing provisions. Beside Committee of Trade and Environment had taken the responsibility on identification of the relationship between trade measures and environmental measures for sustainable development. In collaboration with those agencies responsible for MEAs in fisheries, existing WTO Agreements could be useful. As mentioned earlier enhancing capacity in fishery management, increasing awareness on the environmental impact as well as appropriate technology for sustainable development in harvesting, processing and trading sector, and better understanding on the existing WTO trade provisions could have a significant contribution on human development in Thai fisheries.

Agreement on TBT covered trade measures which could be non-tariff barriers. Negotiation on eco-labeling and other trade restriction could refer to this agreement. Requirements on eco-labeling could be an alternative for regulating Production and Process Methods (PPMs), providing options among the buyers rather than restriction on production process. To adopt such

measure Agreement on TBT and Agreement on SPS could be combined in providing least trade restrictive measure on eco-labeling

Food and Agriculture Organization (FAO) estimated that around two-third of fishing grounds had been over-fishing. Fishery subsidies in developed countries could lead to over capacity among those fleets and thus fishery resource degradation in new fishing grounds of other less advanced fishing technology countries, especially in the southern hemisphere. Three Agreements had been undertaken by FAO.

- Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas 1993
- Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. 1995
- Code of Conduct for Responsible Fisheries 1995

The issues in the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas was first raised in 1992 and rapidly came into effect in 1993. Being involved with only the high seas could be a factor of fast effectiveness of this Agreement. States were aware of scarce fishery resources in their jurisdiction. Capable fishing nations were competing for high seas fishery resources. In spite of being targeted on responsible fishing, the Agreement, which could be considered environmental agreement, can be trade related. Fishery subsidies, in various forms, led to more investment in distant water fishing fleet, increasing capacity for high seas fisheries. The subsidy could lower the fishing cost, thus increase fishing effort and more resource depletion. Responsible fishing decreased unnecessary loss of resource abundance. An advantage of the Agreement adopted by FAO was Article XIV of the FAO Constitution which once the Agreement had been approved, could be submitted to FAO members, associate members and eligible non-member States for acceptance. Article IX of the Agreement contained dispute settlement including a mutually satisfactory solution, negotiation (including inquiry, mediation, conciliation, arbitration, judicial settlement and other peaceful means by choice), and finally referring to the International Court of Justice and the 1982 United Nations Convention on the Law of the Sea. Article VII provided support on technical assistance for developing countries to fulfill their obligation under this Agreement.

Effort on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks began in 1992 in response to United Nations Conference on Environment and Development at Rio de Janeiro. The objectives were to identify the problems of straddling and highly migratory fish stocks, means of fishery management cooperation among coastal and fishing states, and recommendation on management strategy for sustainable fisheries. The Agreement was adopted in 1995. Article 5 of the Agreement sought cooperation from coastal states as well as high seas fishing states. Interests of artisanal fishers were also incorporated. Part II of the Agreement allowed establishments of regional and sub-regional fishery management organizations. Examples were the International Convention for Conservation of Atlantic Tunas (ICCAT) and the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR). Part VI defined the functions of the flag states, international cooperation as well as

sub-regional and regional cooperation in enforcement. Provision for developing states was included in Part VII allowing for nutritional requirement, small-scale artisanal fisheries, management capacity and assistance to improve the capability and ability to meet cost of enforcement. Peaceful settlement of disputes was covered in Part VIII.

Code of Conduct for Responsible Fisheries covered fishing operations, fisheries management, aquaculture development, fisheries and coastal area management, fisheries research, and post-harvest practices and trade; thus directly impact on fishery trade. The objective was sustainable fisheries via responsible fishing. The Code contained principles for effective management, conservation, and development of living aquatic resources taking into consideration the nutritional, economic, social, environmental and cultural importance of fisheries. Certain parts were based on the United Nations Convention on the Law of the Sea 1982 as well as the earlier Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas 1993. Nevertheless the Code was voluntary. Article 4 of the Code described the functions on implementation, monitoring and updating, which FAO played the key role. Special requirements of developing countries were in Article 5.

Referring to fish utilization, the Code referred to FAO/WHO Codex for minimum standards for safety and quality assurance, in addition to environmentally sound manner. Decrease in post-harvest losses, and improved utilization of by-catches were encouraged. Consideration was given on facilitating value-added products by developing countries. Identification of fish origin for traded fishery products was recommended. Nevertheless development of laws, regulations and policies must not be market distortion.

For responsible international fishery trade, the Code put priority on sustainable fishery development. Trade measures must be transparent. WTO Agreements on SPS and TBT were fully recognized. The Code favored fishery trade liberalization, thus eliminating tariffs and trade barriers while discontents on market access as well as technology access in exchange for resource access.

Multilateral fishery agreements had long been developed. There was the United Nations Convention on Laws of the Sea (UNCLOS) 1982 which had been the basic reference for other fishery agreements. Multilateral fishery agreements, realizing the fishery resource degradation (mostly in developed country fishing grounds and those in access of developed fishing fleets), put the emphasis on sustainable fishery. FAO had taken leading role, in collaboration with international and regional fishery bodies, to develop management guidelines for sustainable fishery development which would ensure global food security from fishery resources.

According to the United Nations Environment Program (UNEP) among more than 200 MEAs, about more or less 20 concerned trade. Important MEAs with trade provisions include the following.<sup>6</sup>

- Convention on International Trade in Endangered Species (CITES) 1975
- Montreal Protocol 1987
- Basel Convention 1992
- Convention on Biological diversity (CBD) 1993

- Framework Convention on Climate Change (FCCC) 1994
- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC) 1998<sup>7</sup>
- Cartagena Protocol on Bio-safety 2000

CITES was aimed to control trade in endanger species (wild fauna and flora) and products from those species. The list species were identified by the Conference of Parties on scientific advice as being endangered at various extent. It provided trade control ranging from a complete ban to a partial licensing system. Montreal Protocol provided trade control on substances that depleted the stratospheric ozone layer and trade in products produced from controlled substances. Basel Convention focused on the export ban of hazardous waste and their disposal. CBD was aimed at conserving biological diversity for fair and equitable sharing of benefits from genetic resources. There had been potential conflicts between CBD and WTO Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS). CBD emphasized on share of local and indigenous communities mainly in developing countries on biodiversity-related knowledge and informal innovation while TRIPS gave importance on conventional property right regimes, which more often found in developed countries. FCCC was aimed at reducing greenhouse effect. In 1997, the Kyoto Protocol led to two groups of countries – those with commitment on limiting greenhouse gas and those without. It was likely that trade restrictive policies and measures would be adopted to fulfill Kyoto obligation. WTO negotiation on this matter had not been satisfactory while UNEP and FAO concerned on managing potentially toxic substance and pesticide use, worked together to develop the systematic Prior Informed Consent (PIC) which allowed developing countries to stop import of potentially toxic substance. Cartagena Protocol was the CBD Protocol covering trade of living genetically modified organisms (LMOs) and the risk on biodiversity providing precautionary principles and establishes the procedure for countries to decide on LMOs import restriction. Other upcoming regimes included persistent organic pollutants, international forest regime as well as regime for sustainable fisheries.

The aforementioned MEAs more or less concerned fishery trade. For examples the non-tariff measures on import ban on import of fish/fish product caught by fishing gears which were not dolphin safe and without turtle exclusive device and eco-labeling requirement on non GMOs. Recent attempts had been on sustainable fishery, responsible fishing, control on illegal/unreported/unregulated (IUU) fishery, and fishery subsidy; the issues had not yet be taken as MEAs but had been considered thoroughly in international forum. Environmental issues concerning fishery trade emerged as fish being renewable resources. Appropriate and effective management should lead to sustainable fishery. Nevertheless, inefficient management resulted in over-capacity of fishing fleet and thus fishery resource degradation.

### **THAI FISHERS**

Rapid development in Thai fisheries, especially the development of trawls, led to conflict in fishery resource utilization. Effective EEZ forced a number of Thai commercial fishing vessels back into Thai waters, worsened the resource conditions. Recently decreasing fishery resource abundance led to low return from demersal fishing. Some commercial trawls turned to anchovy fishing using fine mesh size thus more resource degradation. The development of anchovy fishery, especially light luring anchovy fishing is another conflict in fishery resource utilization

between commercial and small scale fishermen.<sup>8</sup> Degraded fishery resource was considered a serious problem among these coastal dwellers. Fishing is essential for their livings. Alternative job opportunity was limited. There had been attempts in developing community based fishery management (CBFM). Coastal fishing community with strong village organization and capable leaders were the key factors for success. The community, relying on their indigenous knowledge, could effectively set up appropriate management plan for their fishing grounds. Providing geographical enclosure, coastal community could effectively monitor their fishing grounds.<sup>9</sup> Problems were in enforcement. It was difficult for coastal dwellers themselves to force out illegal fishing.

Since 1982 NGOs had taken roles in organizing fisher folk communities, establishing the saving group to provide involving fund for investment for better resource utilization as well as building up conscious in fishery resource conservation. In 1993 the “Federation of Southern Fisher Folk” was established, being representative for coastal small scale fishermen, in negotiating for sake of the fishers, raising the problem in conflicts of fishery resource utilization (mostly with commercial fishing) and negotiating on the solutions<sup>10</sup>

Thai Department of Fisheries put effort on developing capacity of CBFM in selected coastal villages. Selective fishing gears were promoted as well as strengthening capability in organizing revolving fund group to generate loan on responsible fishing activities.

Thai fisheries were dual; coastal small scale and commercial fisheries. Resources were degraded and need rehabilitation. For coastal small scale fishery, coastal fishery resource abundance should be renewal for sustainable utilization among coastal communities. Community-based fishery management could be promoted granting fishing right to appropriate coastal fishing communities those with justified physical, legal, and social conditions. Government could provide assistance on legal framework, legal enforcement, basic infrastructure, and strengthening community organization including fishery management capability. Department of Fisheries and local administration authority should collaborate in providing assistance to coastal communities such that they could effectively manage coastal resources for sustainable fishing.<sup>11</sup>

Realizing problems of resource degradation, commercial sector showed intention to cooperate in fishery resource rehabilitation scheme. There had been recommendations on coastal zoning, as well as support on buy back program to reduce excess fishing effort among commercial fishing. Nevertheless resource rehabilitation could not be long-lasting without effective control on fishing effort. Once fish was more abundant, low cost of fishing would induce more fishing vessels and finally overcapacity and thus resource degradation. With the cooperation from the commercial sector in rehabilitating Thai fishery resource, strengthening government capacity in fishery resource management for effective enforcement, control and monitoring was needed. The target should be optimum sustainable fishery resource utilization. For small scale coastal fisheries, community based fishery management/co-management could be applied provided capable community organization and management.

#### **HUMAN DEVELOPMEN IN CONTEXT OF FISHERY TRADE LIBERALIZATION**

Priority should be on development of management capacity for sustainable fishery resource utilization. Without the success of shrimp culture, as allowed by coastal abundance, Thailand

could not maintain her being the major seafood supplier in the international market. At the same time careless rapid development in shrimp culture could lead to coastal resource degradation, thus unsustainable shrimp production.<sup>12</sup> As market failed in reflecting the true value of fishery resources, both from capture and culture, trade liberalization could lead to resource degradation which final impact would be upon Thai fishers.

At the harvesting level effective fishery management was urgently required. Lack of scientific information on fishery resources, including the stock assessment, existing effort, impact of fishing gears, and the interaction among various species constrained effective management plan. Lack of personnel and budget on surveillance, monitoring and enforcement led to failure in effective regulation. Fishery management capacity should be strengthened to maintain sustainable fishery resource utilization when trade was liberated. Inefficient fishery management could lead to over fishing capacity and fishery resource degradation; thus failure in achieving sustainable fishery resource utilization. As market failed in reflecting the true value of fishery resources, both from capture and culture, trade liberalization could lead to resource degradation which final impact would be upon the Thais themselves. Benefit from foreign exchange earning seemed to be unequally distributed. It would likely be more enjoyed by commercial sector while the small holders had to bear the burden of resource degradation which finally was the social cost to the Thais themselves.

Strengthening fishery management capacity in commercial harvesting sector is required for sustainable fishing in Thailand. In addition recent fishery resource degradation due to over fishing capacity will have to be rehabilitated. Renewing resource abundance is required especially to alleviate the living conditions of the coastal poor fishermen who do not have other alternative but fishing and have to rely on fishing for the livings. For small scale fishermen, due to the duality in Thai fisheries, as well as other tropical fisheries, management capacity can be strengthen through development of community based fishery management regime and fishery co-management scheme. Assistance is required for human development in this regime.

In linkage fishery industry, fishery resource utilization should be aimed at the optimum use of the catches, with minimum losses in processing. Scheme of quality fishery products should be developed as well as scheme on minimizing the negative externalities from fishing and aquaculture. Research and development was required in these sectors.

Due to scarcity of fishery resources, problems of market failures should be corrected. Effective regulation and control was necessary for the optimal sustainable fishery resource utilization.

Most important in human development for fishery trade liberalization was building the capacity in fishery management for sustainable fishery as well as building awareness and understanding on existing WTO provisions in relevance to fishery trade.

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## ENDNOTES

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<sup>1</sup> As estimated by Department of Fishery.

<sup>2</sup> Intercensal Survey on Marine Fishery in Thailand 2000, National Statistics Office.

<sup>3</sup> Ministerial Declaration, adopted on 14 November 2001 at Ministerial Conference, Fourth Session, Doha, 9 -14 November 2001

<sup>4</sup> As defined by OECD (1994), consumption externalities are environment damages causes by Process and Production Methods (PPMs) which is transmitted by the product itself. The method by which the product was produced has changed the characteristics of the product so that it may pollute or degrade the environment when it is consumed or used. They are considered “product-related PPMs”.

<sup>5</sup> Ibid. Production externalities are environmental damage caused by PPMs which are not transmitted by fishery product itself. These are “non-product- related PPMs” which may lead to environmental degradation in producing areas.

<sup>6</sup> UNEP (2000)

<sup>7</sup> Negotiations had been completed.

<sup>8</sup> Details in Ruangrai Tokrisna , *Conflict in Fishery resource Utilization: The case of Light Luring Anchovy Fishery in Thailand*, 2000.

<sup>9</sup> Details in Ruangrai Tokrisna (2001), *Economic. Investment and policy Analysis of Shrimp Farming in Thailand*

<sup>10</sup> Details in Banjong Na-sae et al, Community Based Natural Resource Management: Case Studies from Southern Traditional Fisher Folk Communities, 2002, pp.19-48.

<sup>11</sup> Details in Ruangrai Tokrisna , *Economic Instruments for Thai Marine Rehabilitation, 2002*

<sup>12</sup>Details in Ruangrai Tokrisna.. *Economic, Investment and Policy Analysis of Shrimp Farming in Thailand.2001*